

0 to 60 dB 10 Bit Programmable TTL Controlled  
Step Attenuator With a 0.06 dB Step SMA Female  
To SMA Female From 500 MHz To 18 GHz



**SDA-180-060-0006-SMA**

**Features**

- Non-Reflective 10 Bit Programmable 60 dB Pin Diode Attenuator
- 0.5 GHz to 18 GHz Frequency Range
- 60 dB Attenuation Range
- Step Resolution of 0.06 dB
- 1 Watt Average Survival Power
- Insertion Loss 4.5 dB Max
- VSWR 2.0:1 Max
- RF Connectors are SMA Female
- 15 Pin Micro-D Female Connector

**Applications**

- Electronic Warfare
- Test & Measurement
- Military & Space
- Radar
- Military Communications Systems

**Description**

The SDA-180-060-0006-SMA is a Non-Reflective 10 Bit Programmable 60 dB Pin Diode Attenuator with Step Resolution as Low as 0.06 dB over the Operating Frequency Range from 0.5 GHz to 18 GHz. The SDA-180-060-0006-SMA is offered in a slim line housing measuring only 0.5" Height. The RF Input/Output Connectors are SMA Female. Along with a 15 Pin Micro-D Female Control Socket. The unit is shipped with a Micro-D Mating Connector.

**Electrical Specifications** (Values at +25°C, sea level)

Description	Min	Typ	Max	Unit
Frequency Range	0.5		18	GHz
Impedance		50		Ohms
Attenuation Range	0		60	dB
Insertion Loss			4.5	dB
VSWR			2:1	
Power Rating		15	30	dBm
Survival Power Average -40 to +85 deg C			+30	dBm
Attenuation Flatness				
@ 20 dB		±1		dB
@ 40 dB		±1.25		dB
@ 60 dB		±3		dB
@ 60 dB		±3		dB
Accuracy of Attenuation				
0 dB to 20 dB		±1		dB
20 dB to 40 dB		±1.5		dB
40 dB to 60 dB		±2		dB
Step Size	0.06			dB
Switching Time			1	
Off Time			0.5	us
DC Voltage		±12	15	Volts
DC Current			150	mA

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### Electrical Specifications (Values at +25°C, sea level)

Description	Min	Typ	Max	Unit
Logic Input "0" (Bit Off)	-0.3		0.8	Volts
Logic Input "1" (Bit On)	2		5	Volts

### Mechanical Specifications

#### Size

Length	2 in [50.8 mm]
Width	1.8 in [45.72 mm]
Height	0.5 in [12.7 mm]
Weight	0.13 lbs [58.97 g]
Connector 1	SMA Female
Connector 2	SMA Female

### Environmental Specifications

#### Temperature

Operating Range	-40 to +85 deg C
Storage Range	-65 to +125 deg C
Humidity	MIL-STD-202F, METHOD 103B COND. B
Shock	MIL-STD-202F, METHOD 213B COND. B
Vibration	MIL-STD-202F, METHOD 204D COND. B
Altitude	MIL-STD-202F, METHOD 105C COND. B
Temperature Cycle	MIL-STD-202F, METHOD 107
Salt Spray	MIL-STD-202F, METHOD 105C COND. B

### Compliance Certifications (see [product page](#) for current document)

### Plotted and Other Data

#### Notes:

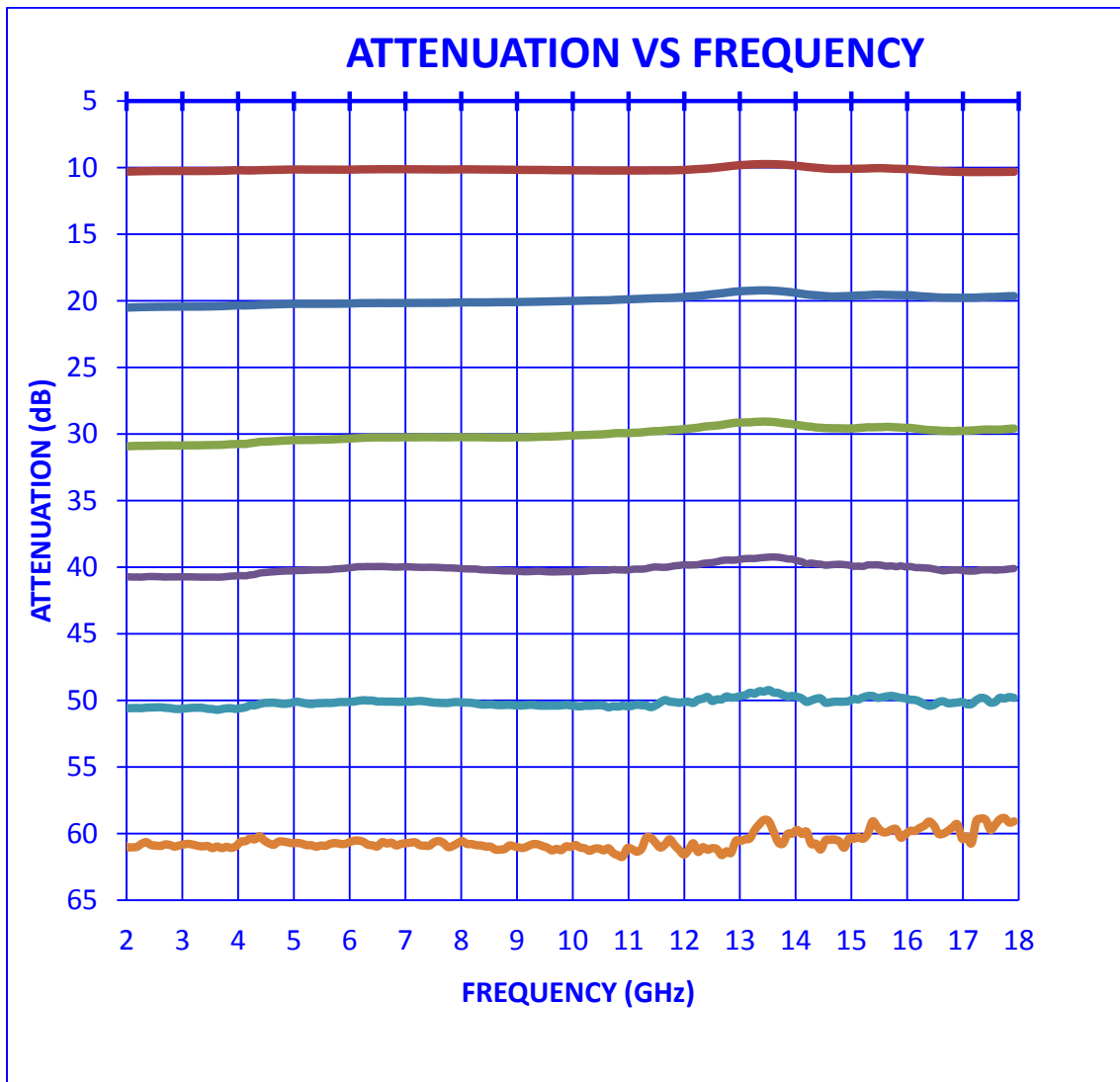
- Values at 25 °C, sea level
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

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Typical Performance Data



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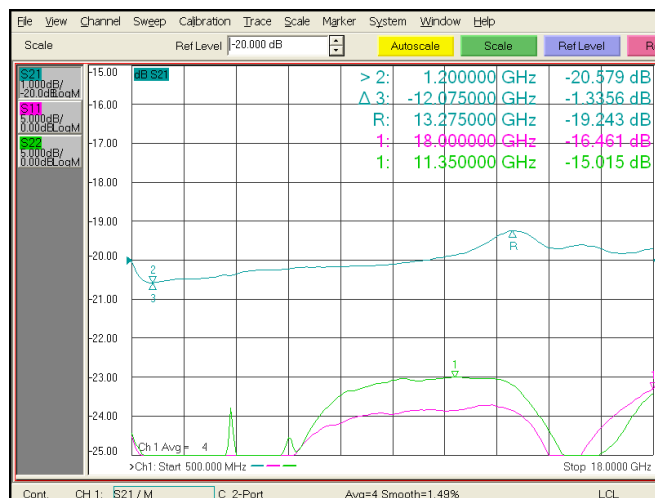
**SDA-180-060-0006-SMA**



**Insertion Loss and VSWR  
@ 0dB Attenuation**



**20dB Attenuation**

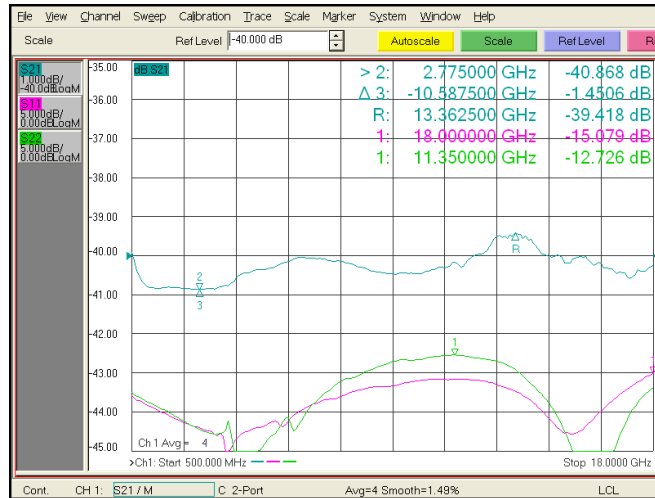


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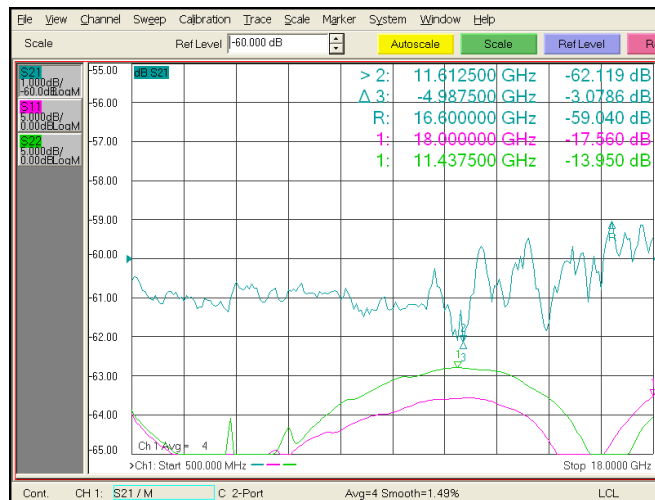
**SDA-180-060-0006-SMA**



**40dB Attenuation**



**60dB Attenuation**

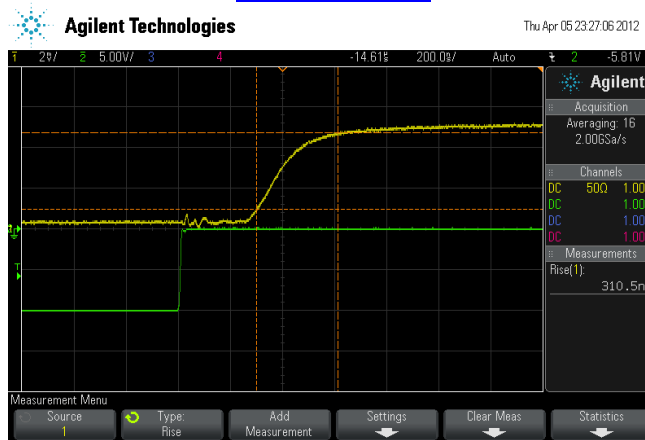


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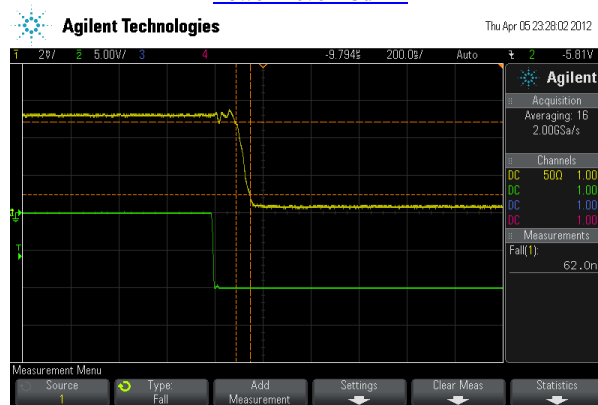


Delay On  
Measured with a Tunnel Diode @ 10GHz  
Power Level +5dBm



Channel 1 (Yellow): Tunnel Diode output  
Channel 2 (Green): TTL Input from Signal Generator

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Measured with a Tunnel Diode @ 10GHz  
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0 to 60 dB 10 Bit Programmable TTL Controlled Step Attenuator With a 0.06 dB Step SMA Female To SMA Female From 500 MHz To 18 GHz from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

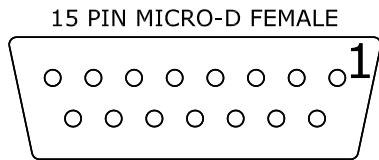
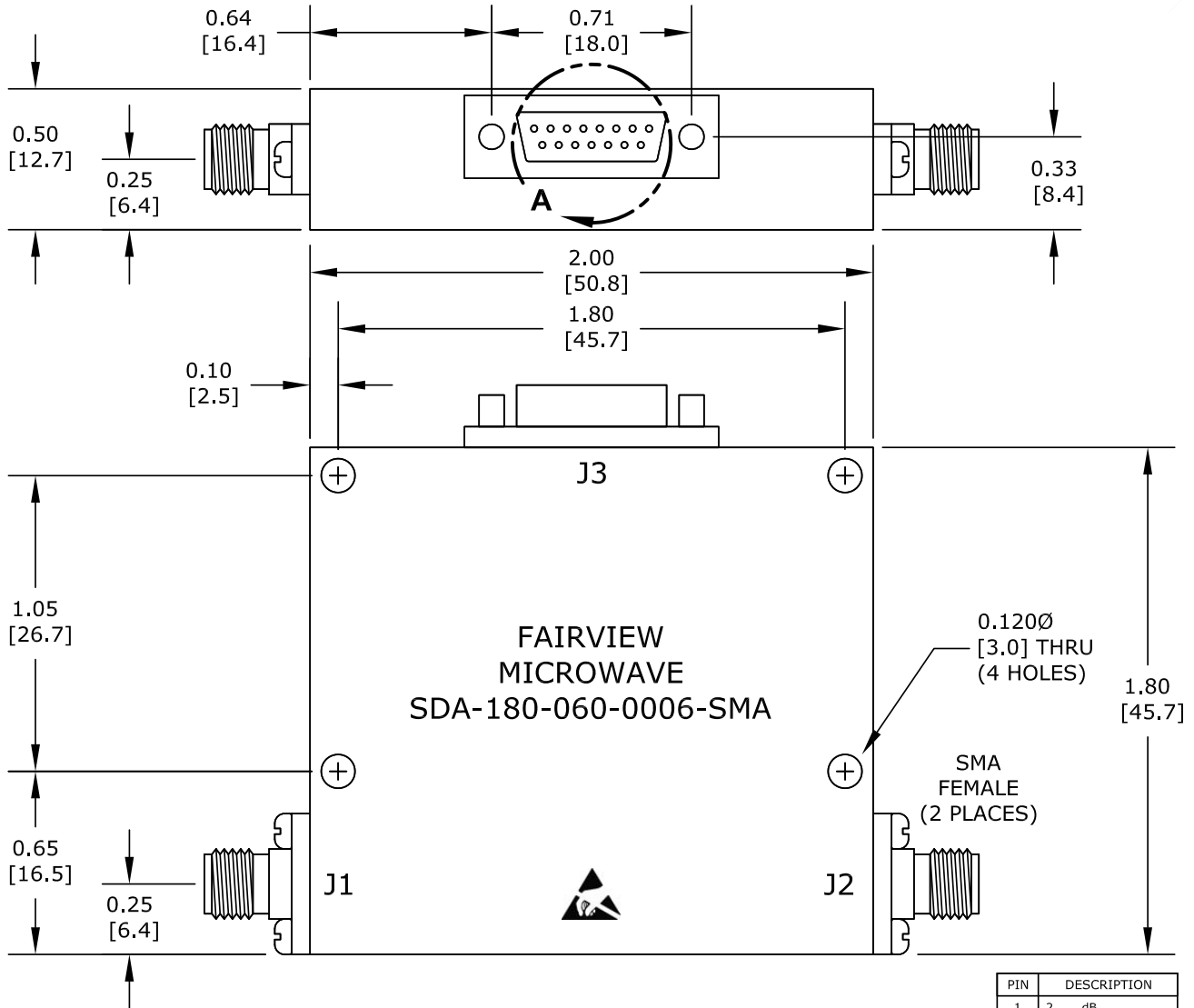
For additional information on this product, please click the following link: [0 to 60 dB 10 Bit Programmable TTL Controlled Step Attenuator With a 0.06 dB Step SMA Female To SMA Female From 500 MHz To 18 GHz SDA-180-060-0006-SMA](https://www.fairviewmicrowave.com/60-db-programmable-step-attenuator-sma-female-sda-180-060-0006-sma-p.aspx)

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# SDA-180-060-0006-SMA CAD Drawing

0 to 60 dB 10 Bit Programmable TTL Controlled Step Attenuator With a 0.06 dB Step  
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**View A**

PIN	DESCRIPTION
1	2 dB
2	1 dB
3	0.5 dB
4	0.25 dB
5	GROUND
6	0.13 dB
7	0.06 dB (LSB)
8	GND
9	NO CONNECTION
10	NO CONNECTION
11	+12 VDC
12	32 dB (MSB)
13	16 dB
14	8 dB
15	4 dB

**FAIRVIEW MICROWAVE INC.**  
ALLEN, TX 75013 WWW.FAIRVIEWMICROWAVE.COM

NOTES:  
1. UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE NOMINAL.  
2. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AT ANY TIME.  
3. DIMENSIONS ARE IN INCHES [mm].

TITLE	DWG NO <b>SDA-180-060-0006-SMA</b>		CAGE CODE <b>3FKR5</b>		
	CAD FILE 052715	SHEET	SCALE N/A	SIZE A	2233